F. W. VOLZ.

SPRING LEAF SPREADER.

APPLICATION FILED OCT. 20, 1917.

1,338,539. **Patented Apr. 27, 1920.**

Fig. 1.

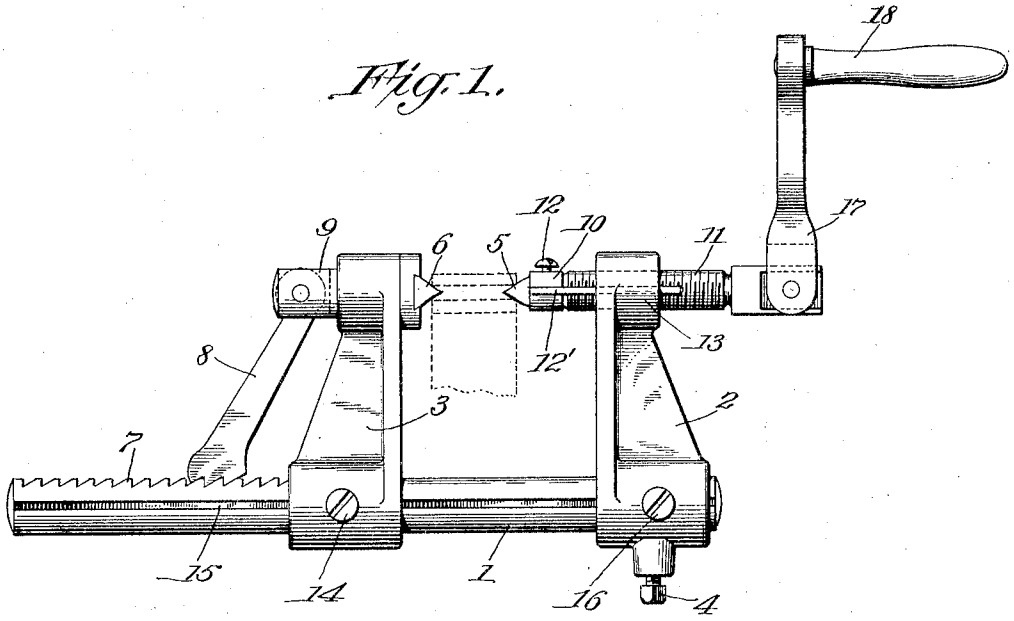


Fig. 2.

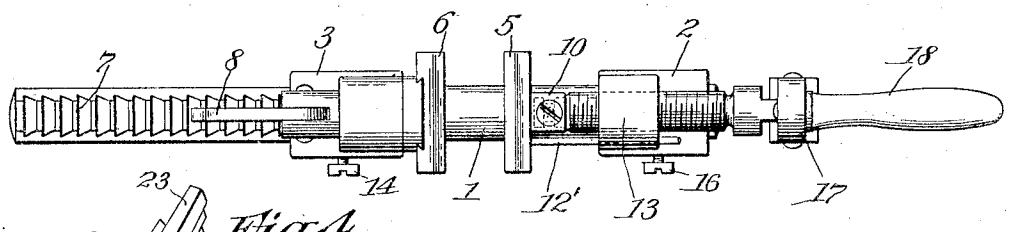


Fig. 4.

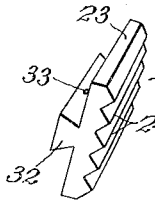


Fig. 3.

Inventor

Frederick W. Volz,

By Byrnes Townsend & Brickenstein

Attorneys

Witness:

P. J. Gathmann

UNITED STATES PATENT OFFICE.

FREDERICK W. VOLZ, OF WASHINGTON, DISTRICT OF COLUMBIA.

SPRING-LEAF SPREADER.

1,338,539. Specification of Letters Patent. Patented Apr. 27, 1920.

Application filed October 20, 1917. Serial No. 197,673.

To all whom it may concern:

Be it known that I, FREDERICK W. VOLZ, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Spring-Leaf Spreaders, of which the following is a specification.

This invention relates to spring-leaf spreaders or separators which are used for separating the leaves of a leaf spring or laminated spring to permit cleaning or lubrication thereof and is intended as an improvement in that class of tools having wedges or tapering jaws and means for forcing these jaws between adjacent leaves of a spring.

It is an object of the invention to provide a device which may be alternately applied to springs of different widths with substantially the same facility as known devices are applied to springs of substantially the same width. It is a further object to so construct a leaf spreader that the time consumed in its operation will be reduced to a practical minimum.

The invention comprises essentially mechanism for affording an initial rapid adjustment of the supports carrying the spreader elements, toward or away from each other, to bring the spreader elements by a single movement approximately into such a position on opposite sides of a spring that the wedges or spreaders may, by a short and quick movement, be forced between the leaves to spread them.

For a fuller understanding of the invention, reference is had to the appended drawings in which—

Figure 1 is a view of an embodiment of the invention in side elevation;

Fig. 2 is a plan view thereof;

Fig. 3 a side elevation of a modified form; and

Fig. 4 a perspective view of a detail.

On a bar or rod 1 are mounted two relatively adjustable supports 2 and 3 carrying the spreader elements 5 and 6. One of these supports, for instance the support 2, is normally held in fixed position on bar 1, but is connected thereto, as by a conventional set screw 4, so that it can be conveniently detached and replaced by a different support or a new support.

The support 3 is made adjustable on bar 1. In order to facilitate the relative movement of the supports toward and away from each other and thereby the movement of the spreader elements to quickly encompass the leaf springs to be spread, I have made support 3 freely slidable on bar 1 and have provided means for locking it in any desired position against pressure tending to force it away from support 2. While there is considerable latitude in the selection of means for the particular purpose, I have found that a rack and pawl connection give the best results. A rack 7 is shown as formed on the bar 1 and a pawl 8 on support 3. It is obvious that the relation of the parts may be reversed. This arrangement has the advantage that the bending strain, which is greatest at the upper end of the support 3, is practically neutralized by the pawl 8. The significance of this advantage is not so much the immediate and direct advantage itself, but rather the indirect effect. As a result of this arrangement it is possible to make the support 3 of lighter construction and to more loosely fit it on bar 1 than would be feasible without it so that sliding it toward and away from the support 1 is an easy operation, especially since this operation must be performed, as is inherent in the application of the device, with one hand only.

The pawl 8 is shown pivoted on a pin 9 mounted on support 3, but this detail feature is not of importance. The spreading element or wedge 6 is preferably detachably fixed on support 3. The spreading element 5 mounted on a collar 10 is given movement forward and backward relatively to the support 2 by means of a screw 11 having a shank portion extending within the collar 10 and connected therewith for relative turning motion by a swivel connection indicated by a set screw or pin 12 engaging in a circular groove in the shank. The screw 11 has screw-threaded engagement with the support 2, so that by turning it to the right or left the spreading element 5 may be reciprocated forward or backward, respectively.

In order to insure movement of the spreader element in a single plane relatively to the support 2, a pin 12′ is connected to the spreader element and has sliding motion in a bore 13 in the support 2 as indicated in dotted lines. To coördinate the movements of the spreading elements 5 and 6 and insure movement thereof in a single plane the support 3 is provided with a guide pin 14

extending into a groove 15 in the bar 1. The movement of the spreading elements is thereby always correlated to the effect that when one spreading edge is entered between two adjacent leaves of a spring, the other edge automatically enters between two leaves on the other side thereof. Support 2 is also provided with a guide pin 16 to similarly engage in groove 15 so that when a support is taken off bar 1 and put back in position, it is at once properly alined with the other support.

Screw 11 is turned by a crank lever 17, preferably pivotally connected thereto, and a handle 18.

The operation is as follows:—

The device is brought in position adjacent to a spring on an automobile or other vehicle so that wedge 5 enters the space between two leaves. While the device is held in such position by one hand, the other hand lifts the pawl and shifts the support 3 to the left or right according to the width of the springs until the wedge 6 can enter the corresponding space between two leaves on the other side. When that position is reached the handle 18 may be given a few turns to spread the leaves. In practice the support 3 may be grasped by the thumb index and middle finger, while the ring finger or the little finger or both may be free for manipulating the pawl. With a little practice it is possible to apply the device in a fraction of a minute with no more difficulty than shifting a weight on a scale beam. The screw 11 has merely the purpose of advancing the spreaders for the actual spreading. Substantially all the other relative motion of the spreaders to bring them into position is brought about through the motion of support 3 by manipulation as above described.

The device shown in Fig. 3 is generally like that shown in Figs. 1 and 2. The support 20 and bar 21 are formed as one integral part by drop-forging. To reduce the time consumed in spreading the various leaves to a practical minimum I have made provision for spreading all leaves by a single operation. For that purpose the spreader elements 22 and 23 carry a plurality of wedge elements 24. Since the leaves of the various forms of leaf-springs vary in thickness, different spreader elements must be used for different springs. To facilitate the interchange of spreader elements I form on the collar 25 and on the support 26 sockets 27 and 28 respectively to receive the spreader elements. The sockets may, of course, be formed in many ways. For the purpose of illustration I have shown dove-tailed grooves 29 and 30 extending horizontally through the sockets 27 and 28. The spreader elements are provided with shanks 31 and 32 to fit in these grooves. For centering the spreader elements and locking them in position I have shown a cone-shaped recess 33 in the shank 32 and pins 34 and 35 extending through corresponding openings in the sockets and normally pressed inwardly by springs 36 and 37. To interchange spreader elements it is only necessary to slightly lift the pins by any suitable means, pull out the spreader elements and enter different spreader elements in their place.

I claim:—

A spring leaf spreader device comprising a bar, arms mounted on the bar and carrying at their free ends spreader elements facing each other, one of said arms being slidably adjustable on the bar toward and away from the other arm, a pawl pivoted on the adjustable arm near the free end thereof and coöperating with the bar for holding the arm in desired adjusted position against movement away from the other arm, the pawl being normally so inclined relatively to the movable arm as to define therewith a hand-receiving opening, and means for moving the spreader element on the relatively stationary arm toward and away from the spreader element on the movable arm.

In testimony whereof I affix my signature.

FREDERICK W. VOLZ.